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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/556,246	11/10/2005	Bernardus Hendrikus Wilhelmus Hendriks	NL030468	6577

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EXAMINER

PRITCHETT, JOSHUA L

ART UNIT	PAPER NUMBER
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2872

MAIL DATE	DELIVERY MODE
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11/28/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/556,246

Applicant(s)

HENDRIKS ET AL.

Examiner

Joshua L. Pritchett

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12-15, 17 and 19 is/are rejected.
- 7) ☒ Claim(s) 11, 16, 18 and 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 November 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 8/07.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

This action is in response to Appeal Brief filed September 17, 2007. All arguments were considered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, 9, 10, 12-15, 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lea (US 4,583,824) in view of Prins (WO 02/099527).

Regarding claims 1, 5, 9 and 10, Lea teaches an optical device comprising: a first fluid (see item 33 in Figure 2) and a second fluid (see item 31 in Figure 2) in contact over a meniscus (see Figure 2) extending transverse an optical axis (see the optical axis in Figure 3D), the fluids being substantially immiscible and having different indices of refraction (see items 33 and 31 in Figure 2); a reflective surface extending transverse the optical axis (see abstract); and a meniscus adjuster arranged to controllably alter at least one of the shape and the position of the meniscus (see abstract). Lea lacks the specifics of the symmetry of the meniscus arranged by the meniscus

adjuster. Prins teaches a with two immiscible fluids (3 and 4) forming an asymmetric shape relative to the optical axis (Figs. 1a-2). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Lea such that the meniscus is asymmetric with respect to the optical axis as disclosed in Prins. The motivation for doing this would have been to correct aberrations.

Regarding Claim 2, Lea further discloses an adjustable mirror wherein the reflective surface is a substantially planar surface (see Figures 1-3).

Regarding Claim 3, Lea further discloses an adjustable mirror wherein the meniscus adjuster is arranged to utilize an electrowetting effect to alter the shape of the meniscus (see abstract).

Regarding Claim 4, Lea in view of Prins fail to disclose an aspheric lens. However, examiner is taking official notice that aspheric lens configurations are well known with respect to adjustable mirrors. At the time of invention, it would have been obvious to one of ordinary skill in the art to further modify the combination of Lea in view of Prins to include an aspheric lens. The motivation for doing this would have been to allow aspherical manipulation of light.

Regarding Claim 6, Lea further discloses an optical device wherein the device is a lighting system for providing a directed beam of light, the device further comprising a light source arranged to emit electromagnetic radiation (see abstract wherein light is reflected from the mirror).

Regarding Claims 12, 17, and 19, Lea as modified by Prins further discloses in Prins an adjustable mirror wherein a first contact angle between the meniscus and a first side wall of the

adjustable mirror is different than a second contact angle between the meniscus and a second side wall of the adjustable mirror (Fig. 2).

Regarding Claim 13, Lea further discloses an adjustable mirror wherein the optical axis extends through the center of the adjustable mirror (see wherein there is an optical axis passing through the center of item 31 in Figure 3D).

Regarding Claim 14, Lea further discloses an adjustable mirror, wherein the meniscus adjuster is arranged to alter the at least one of the shape and the position of the meniscus to form an effective mirror having a reflective part and a refractive part (see item 31 which has a high coefficient of reflectivity and item 14 wherein the light is refracted as it passes through the glass plate).

Regarding Claim 15, Lea further discloses an optical device comprising a reflector (see abstract).

Claims 1, 5, 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishida (US 5,825,801) in view of Ticknor (US 7,016,560) and Prins (WO 02/099527).

Regarding Claims 1 and 5, Nishida teaches an optical device (see item 3 in Figure 10A) comprising: a fluid (see column 4, lines 1-18) in contact over a meniscus (see Figure 10A) extending transverse an optical axis (see Figure 10A); and a meniscus adjuster arranged to controllably alter at least one of the shape and the position of the meniscus (see column 3, lines 66-67 and column 4, lines 1-18). Nishida lacks a second fluid and further lacks teaching that the meniscus adjuster is arranged to controllably alter at least one of the shape and position of the meniscus so that the meniscus is asymmetric with respect to the optical axis. Ticknor teaches a

first fluid (see paragraph 7) and a second fluid (see paragraph 7), the fluids being substantially immiscible (see paragraph 7) and having different indices of refraction (see paragraph 7). Prins teaches a mirror wherein an adjuster is arranged to controllably alter at least one of the shape and the position of the meniscus so that the meniscus is asymmetric (Figs. 1a-2). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nishida's fluid adjusted mirror to include Ticknor's second immiscible fluid. The motivation for doing this would have been to allow optical attenuation with ultra low power dissipation as suggested by Ticknor (see paragraphs 9 and 10). It would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify the system of Lea such that the meniscus is asymmetric with respect to the optical axis. The motivation for doing this would have been to correct aberrations.

Regarding Claims 7 and 8, Nishida further teaches an optical device comprising a laser cavity, the laser cavity (see item 1 in Figure 10A) including a second mirror (see item 2 in Figure 10A) wherein the second mirror is also an adjustable mirror (see column 2, lines 36-54).

Allowable Subject Matter

Claims 11, 16, 18, and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding Claims 11 and 18, though the prior art teaches an adjustable mirror comprising: a first fluid and a second fluid in contact over a meniscus extending transverse an optical axis, the fluids being substantially immiscible and having different indices of refraction; a reflective surface; and a meniscus adjuster arranged to controllably alter at least one of the shape and the position of the meniscus so that the meniscus is asymmetric with respect the optical axis, it fails to teach or disclose the optical device wherein the meniscus adjuster is arranged to alter the at least one of the shape and the position of the meniscus by changing a first wettability of a first side wall of the adjustable mirror by a different amount than a second wettability of a second side wall of the adjustable mirror as set forth in the claimed combination.

Regarding Claims 16 and 20, though the prior art teaches an optical device comprising a first fluid and a second fluid in contact over a meniscus extending transverse an optical axis, the fluids being substantially immiscible and having different indices of refraction; a reflective surface; and a meniscus adjuster arranged to controllably alter at least one of the shape and position of the meniscus so that the meniscus is asymmetric with respect the optical axis, it fails to teach or disclose the optical device wherein the meniscus adjuster is arranged to alter the at least one of the shape and the position of the meniscus by changing a first wettability of a first side wall of the adjustable mirror by a different amount than a second wettability of a second side wall of the adjustable mirror as set forth in the claimed combination.

Response to Arguments

Applicant's arguments, see Appeal Brief, filed September 17, 2007, with respect to the rejection(s) of claim(s) 1 under Fuschetto have been fully considered and are persuasive.

Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Prins. Applicant argued the Fuschetto reference fails to teach an asymmetric meniscus with respect to the optical axis. Prins shows an asymmetric reflection surface (Figs. 1a-2).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Art Unit: 2872


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua L. Pritchett whose telephone number is 571-272-2318.

The examiner can normally be reached on Monday - Friday 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone B. Allen can be reached on 571-272-2434. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Stephone B. Allen
Supervisory Patent Examiner


Joshua L Pritchett
Examiner
Art Unit 2872